PAB Hazard Awareness Training Handout

[NDPAB001/CB/01]

Version 1.0
Date: 02/05/2019

Overview

Operations within the Proton Assembly Building (PAB) present many hazards. This document is intended to inform you of the potential hazards you may encounter in PAB and the proper precautions to take to prevent unsafe situations. Please read the entire document, and complete the online quiz. This hazard awareness training is mandatory for all personnel who enter PAB or work at PAB routinely. Completion of this training will allow you to be added to the building access list. Contact the Facility Manager once you have completed this training to be added to the PAB access list. This training is valid for 2 years.

1. Introduction

This training document outlines the hazards specific to the Proton Assembly Building (PAB).

All personnel are required to immediately stop any activity that poses an imminent danger to personnel or the environment and notify the Facility Manager, their supervisor/point-of-contact (POC) ,and the Neutrino Division (ND) Division Safety Officer (DSO), Angela Aparicio (x3701, exp_dso@fnal.gov).

If you find a situation in which you need advice, training, review or a decision in regard to safety or safe operations, you should first consult with your immediate supervisor/point-of-contact (POC). If you and your supervisor/POC conclude that the matter goes beyond your own group, that you need assistance in resolving it, or that you need to arrange for safety training, you should contact the ND DSO.

In the event of an emergency, you should call extension 3131 from any Fermilab telephone (630-840-3131 from a cell phone).

PAB Contacts

Building Manager	Ron Davis	x5119, rpd@fnal.gov
Backup Building Manager	Harry Ferguson	x2450, ferguson@fnal.gov
Facility Manager	Alan Hahn	x2987, ahahn@fnal.gov
Division Safety Officer	Angela Aparicio	x3701, exp_dso@fnal.gov
Radiation Safety Officer	Kathy Graden	x4939, graden@fnal.gov
ORC Chair	Leo Bellantoni	630-730-2155, bellanto@fnal.gov

*** Spokespersons **must** notify the Facility Manager and the Building Manager of new personnel who will need to enter PAB to ensure they will have access to the building. ***

Environmental Safety, Health & Quality (ESH&Q) materials referenced in this document can be consulted for guidance on ESH&Q issues. These materials can be found on-line at this URL: http://eshq.fnal.gov/atwork/.

2. Personal Protective Equipment

All personnel entering PAB must wear sturdy, closed-toe shoes, at a minimum, during all phases of work. Other general PPE requirements for entrants will vary depending upon the activities in the building. Those who will work in the hi-bay area should expect that hard hats and safety glasses may be necessary.

The PPE required for specific activities will be determined based on the hazards of the specific tasks and must be described in the associated job hazard analyses.

3. Cryogenic Hazards

There are areas within the facility where cryogens such as liquid nitrogen or argon may be routinely present. A leak of these materials can cause local zones of oxygen deficiency. In addition, there may be areas where acute physical hazards associated with handling cryogenic materials, such as burns to the eyes and skin, are present. When cryogenic materials are handled, appropriate PPE, such as gloves and protective eyewear with side shields, must be worn. Additional information regarding the controls and procedures required of cryogenic and ODH areas are contained in FESHM 5032 Cryogenic System Review and FESHM 4240 Oxygen Deficiency Hazards (ODH) (Work Smart Standard).

There are multiple cryostats within the PAB. Any individual who will be handling cryogens must complete Cryogenic Safety (General) [FN000115] Training (personnel who will want to handle cryogens, such as filling portable dewars must speak with the Building Manager first). PPE will be required to handle cryogens and may include: cryogenic gloves, face shield and safety glasses, long pants (no shorts), and leather boots/shoes.

Personnel who may work on any of the pressurized systems within PAB must complete Pressure Safety Orientation [FN000271] Training. If personnel will need to work on systems that may contain stored hazardous energy (e.g. pressurized gas, electricity, etc.), Lockout/Tagout Level 2 training [FN000212] will be required. The use of configuration control locks does not require Lockout/Tagout Level 2 training. Configuration control guidance is provided in FESHM Chapter 2100: Fermilab Energy Control Program.

Personnel handling compressed gas cylinders (e.g. connecting/disconnecting, transporting) must complete Compressed Gas Cylinder Safety [FN000213] Training.

Personnel who will move the large portable dewars must complete Large (160L/240L) Portable Liquefied Gas Dewar Handing [FN000475] Training to understand the proper operation of the dewar carts.

4. Hazardous Energy

Many components present at PAB utilize potentially dangerous high voltages and/or currents. In addition, certain electrical devices/components may retain significant electric charge after their high-voltage sources are removed. These sources of energy can cause electric shock to personnel if work on these devices is carried out improperly.

Basic Electrical Safety [FN000235] Training is required for individuals who will work in PAB due to the number of experimental electronic equipment they may come across. In the event of any electrical shock (including a "tingling" sensation) the individual must report the incident to their supervisor/Point-of-Contact, and then to the Fermilab Medical Office (WHGF-West Side).

There are many tests and experiments within PAB that utilize high voltage components. All are to be labeled "*Danger-High Voltage*." Personnel who use the high voltage equipment or may work on exposed energized electrical equipment must complete Electrical Safety in the Workplace (NFPA 70E) [FN000385] Training.

5. Radiation Hazards

A facility may contain areas where radiation hazards can be found. Radiation fields can also be found near activated objects and radioactive sources. The ALARA (As Low As Reasonably Achievable) concept is used to keep doses to radiation workers at a minimum. Certain training and dosimetry requirements are also put in place to help keep doses ALARA.

Only personnel who have current Rad Worker Training (Radiological Worker – Classroom [FN000470] and Radiological Worker – Practical Factors [FN000471]) and Radioactive Source Training [FN000048] can sign out radioactive sources from the designated "source monitor". The names of the source monitors for PAB are posted on the radioactive source storage box.

6. Material Handling and Tech Shop Equipment

Overhead cranes and hoists are permitted to be operated only by employees and users who have received credit for Fermilab Crane Operator [FN000005/CR] Training and the associated on-the-job training [FN000005/OJ] and evaluation course [FN000005/EV].

Forklifts are permitted to be operated only by employees and users who have received credit for Fermilab Forklift Operator [FN000014/CR/00] Training and the associated evaluation course [FN000014/EV/01]. An evaluation must be completed for each type of Powered Industrial Truck the person will use (e.g. sit down, standing, order picker, etc.).

Tech Shop equipment may only be utilized by individuals who have completed Tech Shop Safety – Basic [FN000258] Training and/or Tech Shop Safety – Mills and Lathes [FN000576] Training, **and have been given permission by the area tech shop manager (Ron Davis).**

7. Emergencies

Call ext. 3131 in the event of an emergency, such as personnel requiring medical treatment. Stay on the phone until the emergency operator indicates that s/he has all the necessary information, including your name, location and nature of the emergency. Do not attempt to bandage another person or clean any bodily fluids from another person's injury.

When evacuating any area, proceed to the designated assembly point and wait there until the 'all clear' signal is given. If you must leave and can't wait for the 'all clear', tell your supervisor or an Emergency Warden. Rescue attempts will be made by the Fire Department if someone is unaccounted-for and believed to be in an unsafe area (e.g., burning structure, oxygen deficient area). If you notice that a fellow worker is missing during an emergency, immediately report this to an Emergency Warden, the Incident Commander (Fire Dept.) or the Fire Chief.

7.1. Fire Alarm (steady alarm)

Upon activation of the fire alarm, immediately evacuate the building and gather at the emergency assembly area, located in the parking lot on the east side of PAB.

7.2. Sitewide Emergency Warning System (SEWS)

Upon notification of a severe weather warning, follow directions to move into the designated shelter, which is the PB5 enclosure located on the west side of Road C.

7.3. ODH Alarm (whooper alarm)

Upon activation of the ODH alarm immediately evacuate the building and gather at the emergency assembly area, located in the parking lot on the east side of PAB.

8. Miscellaneous

The following describes some additional general hazards and work rules which exist within the facility:

- Smoking is permitted outdoors only and at least 15 feet away from entrances.
- All new visitors working at Fermilab must register with the Users' Office (Wilson Hall Mezzanine, ext. 3111) upon their arrival.
- Operational Readiness Clearance (ORC) may be required for newly installed or modified tests or experiments in the building. Contact the Facility Manager or DSO for guidance.